

a sentimental value, he said, with a good deal of feeling, "This world would be a pretty poor place if there were no sentiment in it."

FERNALD AS A TEACHER

JOHN M. FOGG, JR.

It was through the medium of his writings that I first became acquainted with Merritt Lyndon Fernald. As a beginning student in Systematic Botany, I early discovered the bound set of *RHODORA* in our Departmental Library and, starting with Volume I, set myself the task of reading every number of this Journal and preparing my own card index of all new species, varieties and combinations, with cross references to significant range extensions, local floras and items relating to plant geography. It was in this manner that I formed a high and lasting regard for Fernald's botanical scholarship, his careful and precise use of English, and, above all, his intimate and critical knowledge of the flora of Eastern Temperate North America.

As I read his paper on "The Plants of Wineland the Good," studied his revisions of difficult taxonomic groups, devoured his discussions of glaciation, Post-Pleistocene land bridges and nunataks, and, above all, avidly consumed his accounts of field work in Nova Scotia, the Gaspé Peninsula and Newfoundland, I conceived an intense desire to meet the author and especially to have the privilege of accompanying him on a botanical expedition. The realization of both these wishes I owe to my good friend, Mr. Bayard Long, who somehow succeeded in persuading Fernald to invite a young botanist at the University of Pennsylvania to join Long and him on a brief field trip to Newfoundland late in the summer of 1926, following the Fourth International Botanical Congress at Ithaca.

It was on this expedition, the first of many, that I came more fully to appreciate the dynamic qualities which made Fernald the greatest student of our eastern flora since Asa Gray. Our assignment on four short weeks in the field was divided between exploring the country around Lark Harbor on the west coast of Newfoundland and collecting on the granitic barrens of the south coast near Burgeo. Those favored students who have been with

Fernald in the field need not be reminded of his indefatigable energy, his keenness of perception, and his uncanny ability for recognizing significant variations. To me, one of the most delightful features of this experience was what came to be known as "the bed-time story." After the day's collections were safely in press, and often by the flickering light of an oil lamp, it was our invariable custom to gather around while Professor Fernald, with the aid of his homemade check list, ran through and entered the finds of the day, with a running comment on the distributional vagaries of the plants concerned and illuminating observations on botanists past and present. In these informal sessions a multitude of new species and varieties was conceived, some of them to be born later in the pages of RHODORA, others falling by the wayside as their characters were subsequently shown to be too trivial for recognition. It was in this manner that I first realized the full stature of Fernald as a preceptor. His seemingly inexhaustible supply of information concerning taxonomic literature, his remarkably tenacious memory, his capacity for seeing the forest as well as the trees, all combined to make of him a superbly interesting and stimulating teacher.

It was on this expedition that I first took up with Professor Fernald the matter of my coming to the Gray Herbarium to pursue my doctoral dissertation under his supervision. His advice, for which I am everlastingly grateful and which I consider valid for all graduate students, was that instead of accepting an assistantship or a teaching fellowship, I should arrive unencumbered by any obligation other than to devote myself full time to my problem. When, therefore, I presented myself at the Gray Herbarium in the autumn of 1927, I had completed my formal program of graduate course work and was, for a year at least, financially independent. I was thus divorced from the necessity of taking courses, although, at Fernald's suggestion, I "listened in" on his undergraduate course in Systematic Botany, as well as his famous Botany 10 (Classification and Distribution of Flowering Plants; Advanced Studies on Special Topics). The first of these provided an interesting revelation of Fernald's classroom technique. Following a key to seed plants which he had constructed, and which with some modifications has found its way into the Eighth Edition of Gray's Manual, Fernald took

up in his lectures the families of Spermatophytes, beginning with the Pinaceae. After elucidating familial and generic characters, our lecturer proceeded to discourse upon the more significant species, pointing out their distinguishing traits and presenting a wealth of information concerning their geographic distribution and economic importance. When, by the end of the first semester he had not even reached the end of the Monocotyledons, it became a question in the minds of the members of the class as to whether the course was going to take two or three years for completion instead of the single academic year as announced. Nevertheless, our Professor, without seeming to curtail the vast amount of interesting material at his command, somehow managed to quicken his pace, so that by the final lecture in May, the Composites were safely tucked in. We had learned how to cook young cattail inflorescences, how to prepare biscuits from flour made from the corms of *Arisaema triphyllum*, and how to be assured of a steady supply of "winter asparagus" from the roots of *Phytolacca americana*. Also, those of us who had taken careful notes were in possession of a fine new natural key to seed plants to try out on our own students.

Botany 10 was a flower of another color. Our small class, which included G. Ledyard Stebbins Jr., H. K. Svenson and Father Louis Lalonde, spent much of its time following Professor Fernald around the Herbarium as he opened case after case and listening to his informal but illuminating discussion of such genera as *Sparganium*, *Potamogeton*, *Poa*, *Carex*, *Scirpus*, and many others. These demonstrations provided Fernald with an opportunity for pointing out diagnostic characters and emphasizing the criteria which he employed in his monographic and revisionary studies. In this manner the student learned how to tackle a difficult taxonomic group as well as how to use the literature. Always, however, there was the healthy insistence, so well exemplified by Fernald's own procedures, that herbarium work must be supplemented by study in the field.

One of the most delightful episodes of Botany 10 occurred during a three or four week period when the class sat with Fernald around a table in the Library and watched him leaf through the Gray Herbarium's priceless collection of autographs and por-

traits¹ of botanists. Ascherson, Engler, Grisebach, Sir Hans Sloane, the Bauhins, Engelmann, Boott, Steudel, Pringle, the Hookers, Tuckerman, Solander, Willdenow, Rafinesque, Torrey—these and a host of others passed before us in review as Fernald commented on their lives, their travels, and their more important contributions to botanical literature.

In the latter part of the course—and here, it seems to me, he was at his best—Fernald discoursed on his own explorations and expounded his views on such significant and often controversial matters as the persistence of plants in glaciated areas, the effects of coastal subsidence on the distribution of plants, the origin of the Coastal Plain flora, and the high degree of endemism around the Gulf of St. Lawrence. These discussions, in which the members of the class were invited to participate, were highly stimulating and furnished a striking example of the sweep of Fernald's mind coupled with his mastery of detail.

The prosecution of my own piece of work brought me into almost daily contact with Professor Fernald, to whom I never appealed in vain for assistance or advice. My primary task of determining many hundreds of specimens collected on the Elizabeth Islands gave rise to a multitude of questions, especially in dealing with critical genera, and although Fernald seldom revealed his judgment as to the identity of this or that specimen, he invariably directed me to sources which, if properly utilized, yielded the correct answer. This I conceive to be a distinguishing characteristic of a truly fine teacher.

Anyone who has ever worked in the Gray Herbarium will recall Professor Fernald's custom of reading aloud to all and sundry any manuscript on which he happened at the moment to be working. During much of the time that I was in residence there, Fernald was preparing his great paper on the linear-leaved species of *Potamogeton*. Stebbins and I occupied adjoining tables in the New England Botanical Club Wing, and as Fernald in his reso-

¹ This collection of autographs of botanists, botanical collectors and patrons of botany, was started by Asa Gray during his first visit to Europe in 1839, Mrs. Gray adding to it extensively during Gray's life and after his death. A supplemental collection was given to the Gray Herbarium in 1890 by Isabella B. James. The latter contained autographs of a remarkable number of early American botanists. The entire collection, including not only autographs, but biographical notes, letters and often portraits, was arranged and mounted in five large volumes under Mrs. Gray's supervision. These she presented to the Gray Herbarium in 1898.—R. C. R.

nant tones read portions of his manuscript to each new visitor, we came to know sections of this work almost by heart. Indeed, so familiar were we with the text that when Fernald was interrupted or halted for breath, Stebbins and I would continue to intone, verbatim, the ensuing sentences and paragraphs. This willingness to share with others the results of his labors is one of the attributes which made M. L. Fernald such a stimulating companion in the classroom and in the field. It was my further privilege almost daily to accompany him and, during his all too rare visits at that time to the Herbarium, Mr. C. A. Weatherby, to lunch, at which time systematic botany was the sole topic of conversation, with Fernald leading the discussion. Few botanists known to me have been characterized by such singleness of purpose and whole-hearted devotion to their subject.

It is not my function to speak further of Fernald as a companion in the field, but I cannot refrain from stating that subsequent explorations with him in Newfoundland, southeastern New England and the coastal plain of Virginia served only to confirm and strengthen the impressions gained on my first trip in 1926 and combined to provide a rich and rewarding background of experience, which, in a spirit of everlasting indebtedness, I am happy to acknowledge.

In 1865, William James accompanied the great Louis Agassiz on an expedition to the Amazon. In writing to his father about the leader of the party, James said, "No one sees farther into a generalization than his own knowledge of details extends, and you have a greater feeling of weight and solidity about the movement of Agassiz's mind, owing to the continual presence of this great background of special facts, than about the mind of any other man I know . . . I see that in all his talks with me he is pitching into my loose and superficial way of thinking." It is the opinion of at least one of his students that this estimate might with equal validity be applied to Fernald. Intolerant of slipshod methods, acidulously critical of all that he considered mediocre, yet ever ready to praise the results of painstaking and conscientious work, M. L. Fernald's influence as a teacher extended far beyond the confines of the classroom and did much to raise the standard of descriptive systematic botany in this country.